

DERWENT-ACC-NO: 2001-301184  
DERWENT-WEEK: 200132  
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TITLE: Sputter target, used for thin film cathodic sputter deposition, is produced or regenerated by passing an IR source over target material to effect melting on a cast plate or worn target region

INVENTOR: WOLLENBERG, N

PATENT-ASSIGNEE: LEYBOLD MATERIALS GMBH[LEYB]

PRIORITY-DATA: 1999DE-1025330 (June 2, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
DE 19925330 A1	December 7, 2000	N/A
004	C23C 014/34	

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
DE 19925330A1	N/A	1999DE-1025330
June 2, 1999		

INT-CL\_(IPC): C23C014/34

ABSTRACTED-PUB-NO: DE 19925330A

BASIC-ABSTRACT: NOVELTY - Sputter target production or recycling, using a overhead moving IR source (2) to melt target material on a cast plate (3) or worn target region, is new.

DETAILED DESCRIPTION - A sputter target production or recycling process comprises covering a cast plate (3) or worn target region with target material pieces or melt and then supplying heat from an IR emitter (2) which is passed over the target material (1) to effect complete melting and then solidification of the target material.

Enclosed  
10/

73, 16, 5 / IR → encompasses laser

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15/

16

20

DERWENT-ACC-NO: 1998-064177  
DERWENT-WEEK: 199807  
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TITLE: Sputtering target production and recycling -  
involves melting using  
heating head advanced through preferably solid target  
material

INVENTOR: HEINDEL, J; LUH, H ; SCHLOTT, M ; WEIGERT, M

PATENT-ASSIGNEE: LEYBOLD MATERIALS GMBH [LEYB]

PRIORITY-DATA: 1996DE-1026732 (July 3, 1996)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
DE 19626732 A1	January 8, 1998	N/A
007	C23C 014/34	

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
DE19626732A1	N/A	1996DE-1026732
July 3, 1996		

INT-CL (IPC): C22F001/00; C23C014/34 ; H01J009/50  
ABSTRACTED-PUB-NO: DE19626732A

BASIC-ABSTRACT:

A sputtering target made of a metal or alloy which can be  
melted in air, and  
which has a liquidus temperature (TL) of below 500 deg. C,  
is melted by (a)  
heating a heating head (8) to a temperature TM above TL and  
lowering it into  
the preferably initially solid target material (5, 20) to  
melt the material in  
the region of the heating head; and (b) passing the heating  
head successively  
through the target material so that the solidification zone  
(25), formed behind  
the heating head, travels successively over the entire  
target region.

*No 1035 on the  
beam  
claims*

USE - For production or recycling of sputter targets, used for cathodic sputter deposition of e.g. functional electronic layers, magnetic data recording layers, corrosion and wear protection layers and optical layers.

ADVANTAGE - The process provides uniform melting of the target material even over extended operating times, without the contamination and slag adhesion problems of an immersed melting head moved through the target material.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross-sectional view of equipment for carrying out the process of the invention.

Target material 1

IR source 2

CHOSEN-DRAWING: Dwg.1/2

TITLE-TERMS:

SPUTTER TARGET THIN FILM CATHODE SPUTTER DEPOSIT PRODUCE  
REGENERATE PASS  
INFRARED SOURCE TARGET MATERIAL EFFECT MELT CAST PLATE WEAR  
TARGET REGION

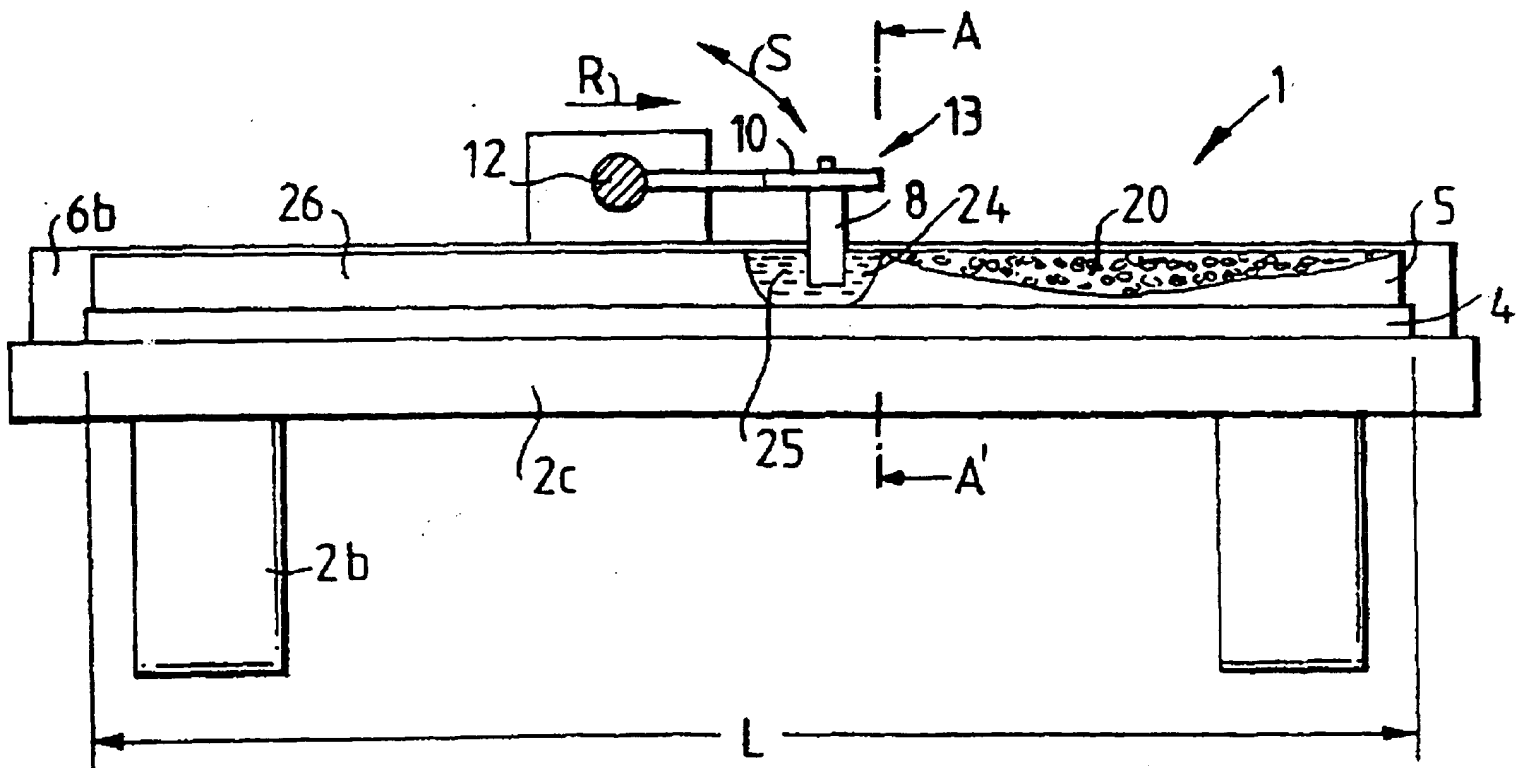
DERWENT-CLASS: L03 M13 T03 U11 V04 V05

CPI-CODES: L03-H04E3; L04-D02; M13-G02;

EPI-CODES: T03-A02A3A; U11-C09A; V04-X; V05-L01B9;  
V05-L05F5; V05-L07E6;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2001-092610  
Non-CPI Secondary Accession Numbers: N2001-216134



Preferably, the target material consists of In, Sn, Pb, Bi, Zn or their alloys.

Also claimed are:

(i) processes for producing and for recycling the above target by melting; and

(ii) an apparatus for carrying out the above processes.

The production process involves:

(a) introducing the target material in the form of pieces (20) or as a melt into a mould consisting of a target backing plate (4) and a surrounding frame (6b); and

(b) passing a heating head (8), which is heated to above the target material melting temperature, through the target material to cause successive melting and then solidification to form a homogeneous one-piece target body (26).

The recycling process involves filling the eroded target region with target material pieces or melt, and then carrying out the above step (b).

ADVANTAGE - The sputtering target can be produced and recycled in a simple, productive and inexpensive manner, without the need for shaping or machining post-treatment, and can have a homogeneous structure with a single solidification direction.

CHOSEN-DRAWING: Dwg.4/5

DERWENT-CLASS: L03 M13 V05

CPI-CODES: L03-C; M13-G02;

EPI-CODES: V05-F04B5C; V05-F05C3A; V05-F08D1A; V05-L01B9;